

**Report to Implementation Subcommittee  
from Working Party 2 on Transition Scenarios**

**June 29, 1992**

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## **Analysis of System-Specific Implementation**

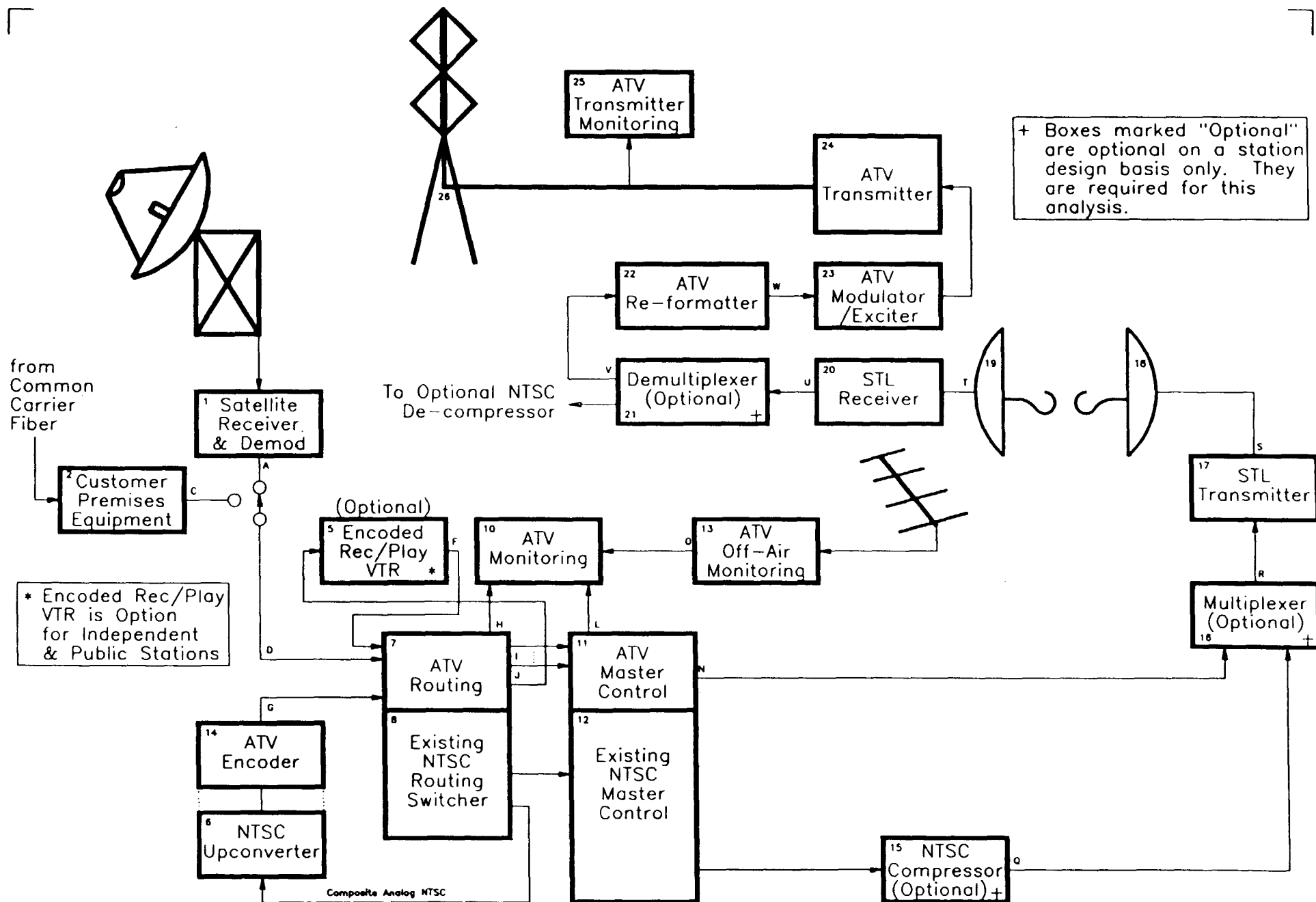
- **Proponent meetings – 1/13/92 & 3/25/92**
- **Questions for Proponents**
  - **Analysis of initial answers during multiple conference calls**
- **Follow-up Questions for Proponents**
  - **Requested for meeting of 3/25/92**
  - **Last written responses received for meeting of 6/24/92**
- **Summary tabulation of initial responses prepared**
  - **Next step is inclusion of follow-up responses in tabulation**

## Analysis of System-Specific Implementation - *cont'd.(1)*

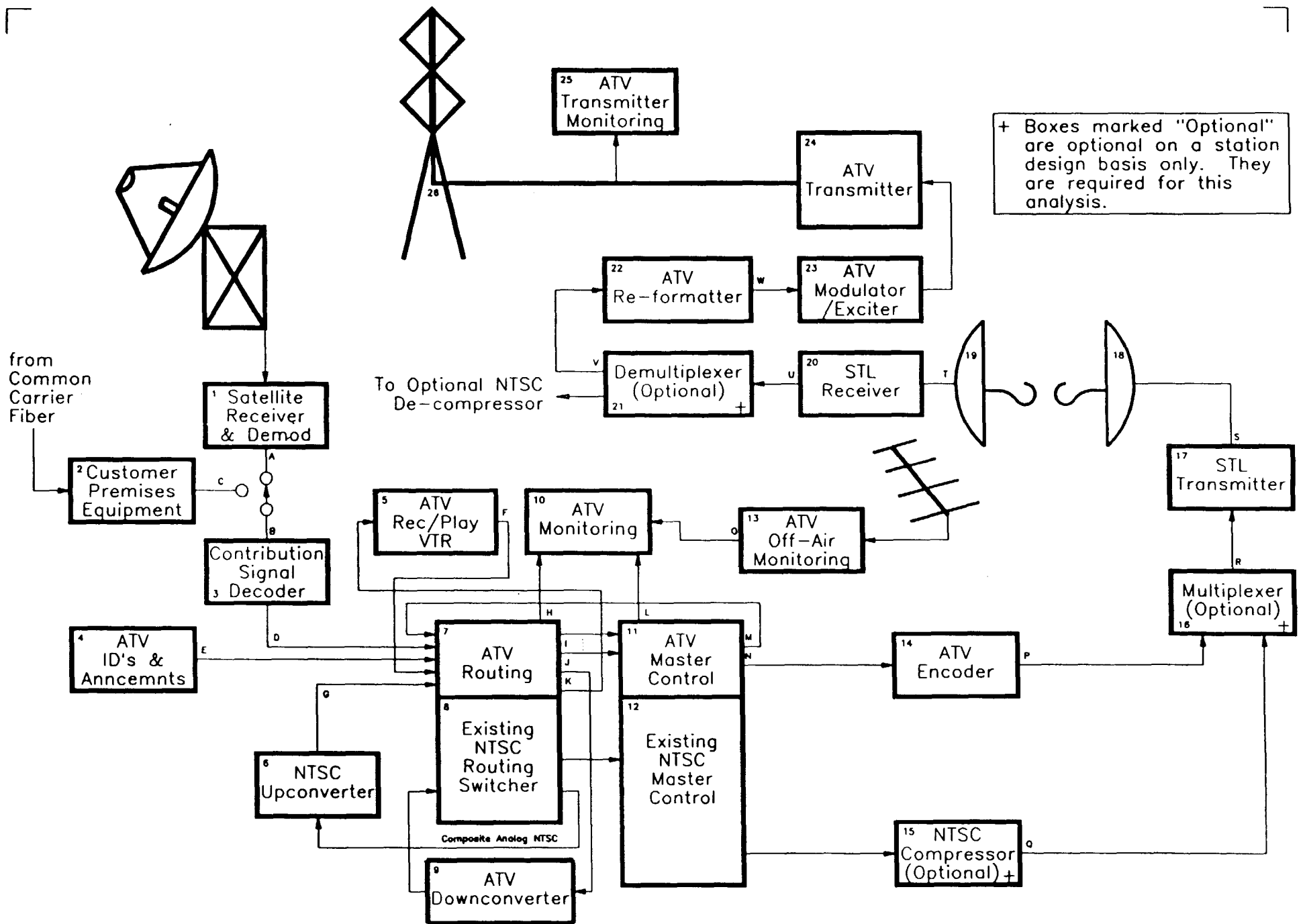
- Other inputs from Proponents
  - Comments on PERT, Gantt charts, Lists of Assumptions
  - Block diagrams of ATV stations
    - "Minimal"
    - "Transitional"
- Block diagrams jointly developed with SS/WP-3
  - Common descriptive terminology generated
  - Charts provided for filling in descriptions of system elements
- Uses "pass-through" television station as a model
  - Representative of other applications
  - E.g., Cable Headend — commercial insertion

## **Analysis of System-Specific Implementation - *cont'd.*(2)**

- **"Minimal" station assumes limitations in program release capability**
  - Uses fully compressed signals throughout for minimum cost
  - Requires all transitions to be cuts - full screen material, no effects
  - Cuts may be less than perfect, depending upon system
- **"Transitional" station provides upgrade path to full capability program release**
  - Signals at higher data rate than full compression
  - Signals may be decoded for processing
  - With signal decoding, can provide effects and continuity transitions
- **Review of all materials against current PERT/Gantt/Assumptions**
  - Preparation of System-Specific versions, if required
  - Characteristics of interest included in last report
- **"Minimal" television station block diagram**
- **"Transitional" television station block diagram**



# ATV "Minimal" Television Station



# ATV "Transitional" Television Station

## **Survey of Professional Equipment Manufacturers**

- Professional equipment manufacturers surveyed once at beginning of process
  - Survey based solely on different production standards
  - Only information available at the time
  - Apparent that many answers were given to influence the outcome of the process
  - Results of the initial survey were discarded as inconclusive
- Professional equipment manufacturers to be surveyed once again
  - Far more known about the system proposals
  - Fewer options for underlying raster specifications
  - Opportunities for other forms of compression must be explored
  - IS/WP-2 to concentrate on timing of availability of equipment
  - Will likely work in cooperation with SS/WP-3 handling the economic issues
- Analysis of Proponent responses a prerequisite
  - Will help identify nature of equipment that will be required
  - Will permit differentiation of systems
  - Survey design to be based upon responses

## **Survey of Consumer Electronics Manufacturers**

- **Findings by Consumer Electronics experts in IS/WP-2**
  - Receivers generally available 2½-3 years following FCC decision (and assumed availability of technical information)
  - Proponent might have 6-9 month advantage in start-up
  - General availability required to begin real consumer market
- **Survey of Consumer Electronics Manufacturers undertaken to validate findings**
  - Because of significance of receiver availability to entire implementation
  - Participants in IS/WP-2 represent 3 C.E. manufacturers
  - All three are members of proponent teams
- **Responses continue to confirm IS/WP-2 findings**
  - Survey covers total of 14 manufacturers
  - Ten responses returned so far + 2 participants in IS/WP-2
  - Over 85% of companies are represented
  - All confirm timing of receiver availability as determined by IS/WP-2 experts
  - Some suggestions received for improvements in PERT/Gantt/Assumptions
- **Press report quoting manufacturer as indicating 1 year to receiver availability**
  - Direct response from manufacturer supports IS/WP-2 analysis



### **Survey of Consumer Electronics Manufacturers - *cont'd.***

- **IS/WP-2 documents modified based on inputs from C.E. manufacturers**
  - **Single set of PERT/Gantt/Assumptions split into three sets**
  - **Categorizes manufacturers by types**
    - **Proponent consumer electronics manufacturer**
    - **Non-proponent manufacturer that develops its own Integrated Circuits**
    - **Non-proponent manufacturer that purchases Integrated Circuits from a vendor**
  - **Differentiation will allow more careful examination of timing of receiver availability**
- **One (non-manufacturer) proponent indicates shorter time to receiver availability**
  - **Based on earlier IC availability to manufacturers from vendors**
  - **Accepts risk of starting IC development before ACATS/FCC selection**
  - **Difference might be six months from IS/WP-2 analysis**
  - **Efforts continuing to bring consistency to data**

## Survey of Software Users and Providers

- Request from IS to determine expected availability of programming
  - Users' expectations of supply
  - Producers'/distributors' expectations of demand
  - Plans for production and distribution
- Decision by IS/WP-2 to conduct informal, mini-survey as start
  - Avoid full, complex, time consuming survey, if possible
  - Identify issues to be included in larger survey, if needed
  - Hope is that there will be consistency of responses
- Informal survey devised, first data taken
  - Dozen questions asked
    - First HDTV programming to be offered
    - Production formats to be used
    - Timing of initial program production/distribution, equipment installations
- 10-20 answers sought
  - Broadcast/cable networks
  - Studios/distributors
  - Production/post production houses

## Examination of Distributed Transmission Concept

- Idea discussed informally in industry for some time
  - Introduced formally to ACATS process by MIT submission to SS/WP-1
  - IS/WP-2 decided to look at implications for implementation (5/26/92)
  - Further discussions and plan for examination at last meeting (6/24/92)
- Concept similar to cellular television
  - Multiple transmitters serving smaller areas than single transmitter
  - Lower power, lower height
  - Unlike true cellular systems, all on a single frequency/channel
- Potential solution to two problems
  - Short spacing of co-channel stations
  - Limitations in capacity at main transmitter facility
- Potential operational & technical obstacles to be examined
  - Cost of installation/operation/maintenance of multiple sites vs. single
  - Characteristics required in transmission system
  - Characteristics required in receiver
  - Possibility to burden all receivers for sake of a few situations

## **Examination of Distributed Transmission Concept - *cont'd.***

- **Two-step examination devised**
  - **Develop broadcaster system requirements to make technique practical**
    - **Small group assigned to develop needs/systems**
    - **Input to be sought from existing Local Area Groups**
  - **Seek Proponent input on characteristics of their systems**
- **If match between requirements and characteristics, arrange further study**
  - **Local Area Groups for real world evaluation**
  - **SS/WP-1, SS/WP-2, Field Test Task Force, etc.**

### Follow-up with Local Area Groups

- Local Area Groups established in five major cities
- Two-fold purpose
  - Gain implementation information for IS/WP-2 from potential problem cities
  - Instigate head start for broadcasters in some of the major markets
- Local Area Groups needed more information to proceed
  - Data on system power levels for coverage equivalent to NTSC
  - System transmitter linearity requirements and headroom capabilities
  - Availability and power handling of wideband antennas
  - Other antenna options
- Most of needed information now available
  - Local Area Groups to be asked to look at their situations again and report
- Decision to add five more cities
  - Coordinated with Broadcaster Caucus — no conflict
  - Cities to be decided by Local Area Group liason
  - Combination of top & mid markets

## **Responsibilities of Selected Proponent**

- **Issue arose from original IS/WP-2 identification of documentation requirements**
  - **Significance of documentation covered in earlier reports**
  - **Handed off to IS/WP-1 for further examination**
  - **Came to include more than just the disclosure of the selected system**
- **Some controversy over language to express undertakings required**
  - **IS/WP-2 requested to provide wording to spell out details**
  - **Draft proposal submitted — discussed at IS/WP-1 & IS/WP-2**
  - **Decided to raise to higher level**
- **Current understanding**
  - **Issue covered by original agreement signed by proponents**
  - **No need for further work by IS/WP-2**

### **Concern for Time Required for Documentation Process**

- **Documentation of selected system is gating item for entire implementation**
  - **On the Critical Path in all scenarios**
  - **Seen as very complex standards writing process**
  - **Must be kept to minimum in any way possible**
  - **Assumed in IS/WP-2 studies to be completed at time of NPRM**
- **Concern expressed regarding perceived opportunity to "improve" selected system**
  - **Other proponents**
  - **Non-proponents**
  - **If allowed to happen, could significantly impact speed of implementation**
- **IS/WP-2 writing White Paper on the subject**
  - **Target audience is organization that will conduct documentation process**
  - **Small group assigned to provide inputs on subject**

## **Final IS/WP-2 Activities**

- **Integration of PERT/Gantt/Assumptions into single Implementation program**
  - **Currently done by industry segment**
  - **Plan is to provide unified structure for overall Implementation**
  - **Will work out inter-industry interactions**
- **Differentiation of system implementations, if possible**
- **Preparation of Report to SS/WP-4**
  - **Detailed description of document provided by SS/WP-4**
    - **One page summary (to be included in ACATS Final Report)**
    - **Approx. 25-page backup detail document as part of Appendix**
    - **Other documentation as necessary for communication to FCC**
- **Work on Report to SS/WP-4 already begun**
  - **Outline prepared of IS/WP-2 Fifth Interim Report**
  - **Will serve as starting point for preparation of Final Report**
  - **First draft of Executive Summary written**